

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A vision prosthesis for implantation at a location in an eye, the vision prosthesis comprising:

an optical element having a characteristic function associated with refraction
therethrough; and

a memory element that has stored therein wavefront data to control an index of refraction
profile of the optical element, wherein the wavefront data is configured according
to a selected a high-order aberration correction to modify the characteristic
function of the optical element to reduce high-order aberration in the eye; ~~and
circuitry coupled to the memory element to enable the wavefront data to be programmed
by transmitting data over a wireless link.~~

2. – 7. (Canceled)

8. (Original) The vision prosthesis of claim 1 further comprising:

a range-finder for generating, from a stimulus, an estimate of a distance to an object-of-
regard;

an actuator in communication with the optical element for providing a signal that controls
the focusing power thereof; and

a controller coupled to the rangefinder and to the actuator, for causing the actuator to generate the signal based on the estimate.

9. (Previously Presented) The vision prosthesis of claim 1 further comprising:

an actuator in communication with the optical element for providing a signal that controls the characteristic function thereof; and

a controller coupled to the actuator for causing the actuator to generate the signal based on wavefront data stored in the memory element.

10. (Original) The vision prosthesis of claim 9 wherein the signal is a parallel signal carried over a plurality of signal lines addressing a corresponding plurality of electrodes on the actuator.

11. (Original) The vision prosthesis of claim 9 wherein the characteristic function of the optical element changes in response to the signal by changing an index of refraction of material within the optical element at a plurality of locations.

12. (Canceled)

13. (Original) The vision prosthesis of claim 9 further comprising:

a range-finder coupled to the controller for generating, from a stimulus, an estimate of a distance to an object-of-regard;

wherein the signal is based on the estimate, and focusing power of the optical element changes in response to the estimate.

14. (Original) The vision prosthesis of claim 13 wherein the characteristic function of the optical element changes in response to the estimate.

15. (Original) The vision prosthesis of claim 1 wherein the location in the eye is selected from the group consisting of:

the anterior chamber;
the posterior chamber;
the lens-bag; and
the cornea.

16. (Original) The vision prosthesis of claim 1 wherein the optical element is adapted for implantation in a phakic human patient.

17. (Original) The vision prosthesis of claim 1 wherein the optical element is adapted for implantation in an aphakic human patient.

18. (Withdrawn) A method comprising:

implanting the optical element and memory element of the vision prosthesis of claim 1 into the eye;
measuring aberration in the eye when the optical element is implanted in the eye;
determining the wavefront data based on the measured aberration; and
programming the wavefront data into the memory device.

19. (Canceled)

20. (Previously Presented) The vision prosthesis of claim 1 wherein the wavefront data stored in the memory element is based on a wavefront aberration measurement performed on a patient.

21. (Previously Presented) The vision prosthesis of claim 1 wherein the high-order aberration comprises at least one of spherical aberration, coma, astigmatism, field curvature, and distortion.

22. (Previously Presented) The vision prosthesis of claim 1 wherein the index of refraction profile of the optical element is modifiable to reduce a different high-order aberration in response to different wavefront data being stored in the memory element.

23. (Previously Presented) The vision prosthesis of claim 1 wherein the wavefront data depends on an estimate of a distance to an object-of-regard.

24. – 27. (Canceled)

28. (Previously Presented) The vision prosthesis of claim 8 wherein the controller is configured to use the wavefront data to cause the actuator to provide different signals for different estimates provided by the range-finder.

29. (New) A vision prosthesis for implantation at a location in an eye, the vision prosthesis comprising:

an optical element having a characteristic function associated with refraction
therethrough; and

means for providing wavefront data to control an index of refraction profile of the optical element, wherein the wavefront data is configured according to a selected a high-order aberration correction to modify the characteristic function of the optical element to reduce high-order aberration in the eye.